UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL MARINE FISHERIES SERVICE
525 NE Oregon Street
PORTLAND, OREGON 97232-2737

Refer to:
OSB1998-0013

July 21, 1998

Pieter Dykman
Oregon Department of Transportation
Technical Services Branch
1158 Chemeketa NE
Salem, Oregon 97310

Re: Biological Opinion for the Umpqua Culvert Remediation -Batch

Dear Mr. Dykman:

The National Marine Fisheries Service (NMFS) has enclosed the Biological Opinion (DO) for the modify culverts and stream channels to change hydrolic conditions and improve fish passage. This project is described in the Oregon Department of Transportation (ODOT) Biological Assessment (BA).

This opinion considers the Umpqua River cutthroat trout (*Oncorhynchus clarki clarki)*) which occur in the proposed project area. The Umpqua River cutthroat trout ESU was listed as endangered under the ESA by the NMFS (August 9, 1996,61 FR 41514). Umpqua River cutthroat trout critical habitat has been designated (January 9, 1998,63 FR 1388) incorporating all waterways below long-standing, natural impassable barriers. This is the current freshwater and estuarine range of the listed species.

This opinion constitutes formal consultation for the Umpqua River cutthroat trout. If you have any questions regarding this letter, please contact Jim Turner of my staff at (503) 231-6894.

Sincerely,

William Stelle, Jr.
Regional Administrator

cc: Elton Chang -FHWA
Randy Floyd -ODOT
Randy Reeve -ODFW

Endangered Species Act -Section 7
Consultation

BIOLOGICAL OPINION

Umpqua Culvert Remediation –Batch

Agency: Federal Highway Administration

Consultation Conducted By: National Marine Fisheries Service,
Northwest Region

Date Issued: July 21, 1998

Refer to: OSB1998-0013

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I. Background

On June 30, 1998, the National Marine Fisheries Service (NMFS) received a request from Oregon Department of Transportation (ODOT) to reinitiate Endangered Species Act (ESA) section 7 consultation for culvert remediation actions within the Umpqua basin. ODOT is the lead agency and designated non-Federal representative for transportation related actions in Oregon that are supported by funds from the Federal Highway Administration. ODOT has prepared a Biological Assessment (BA) for general culvert remediation actions within western Oregon. The NMFS is currently consulting on these culvert remediation actions as a program of actions. This Biological Opinion is based on the information presented in the BA and the additional information provided by ODOT .

ODOT has determined that the Umpqua River cutthroat trout (Oncorhynchus clarki clarki) and its critical occur within the immediate project area. ODOT is proposing to modify culverts and stream channels to change hydraulic conditions and improve fish passage. These actions include placing rock and weirs in-channel, constructing culvert extensions, and anchoring in-culvert baffles and weirs. These actions were determined to affect the indicated species. The effects determination is made using the methods described in Making ESA Determinations of Effect for Individual or Grouped Actions at the Watershed Scale (NMFS 1996). ODOT initiated consultation on the actions being considered in this Biological Opinion (BO) in early June. ODOT determined that the proposed actions were not likely to adversely affect the indicated species based on the expectation that the indicated species would not be present at the work site. Subsequently and after additional discussions with Oregon Department of Fish and Wildlife (ODFW) biologists, ODOT determined that the indicated species would likely be present at the proposed work sites in stream pools and back water areas. Therefore ODOT has reinitiated consultation and determined that those specific actions that involve modification of stream channels by placement of in-channel weirs may likely adversely affect the listed species.

This BO reflects the results of the consultation process. This consultation process has involved correspondence and communications to obtain additional information and clarify the BA. As appropriate, modifications to the proposal to reduce impacts to the indicated species were discussed and enacted.

The objective of this biological opinion is to determine whether the action(s) to modify culverts and stream channels to change hydraulic conditions and improve fish passage is likely to jeopardize the continued existence of Umpqua River cutthroat trout or destroy or adversely modify critical habitat.

II. Proposed Actions

The proposed actions occur in various locations within the Umpqua River basin. All proposed actions are designed, and to some extent include a combination of features, to increase water depth, slow water velocity , create small current reversals, and reduce the height difference

(jumps) between stream and culvert. The work will be conducted in accordance with the ODFW standards and monitored to ensure success (ODFW 1997a). These actions are necessary due to existing culvert design and condition which has been determined to impair fish passage (ODFW 1997b).

The work consists of constructing in-channel rock weirs, placement of in-channel boulders, constructing or placing in-culvert baffles, and bolting of iron lattice work in-culvert. Some additional modification-to the culverts include extending wing walls on concrete box culverts and reinforcing stream bank with rock rip rap. This work involves using a back hoe or other heavy equipment for constructing rock weirs, culvert extensions, and bank protection. The in-culvert work, including the construction of concrete baffles or anchoring of plastic baffles will be done by hand. All activity involving fresh concrete will be conducted in isolation from actively flowing streams by temporarily diverting stream flows. In stream rock placement will be done from the stream bank and rock will be individually placed.

Specific actions to be taken at each site includes:

Woodford Creek 1-5 MP 83.09, Umpqua Basin

This proposed activity includes removing concrete weirs, and plastic baffles will be installed inside culvert.

Canyon Creek 1-5 MP 94.2, Umpqua Basin

This proposed activity includes anchoring large boulders within concrete footings.

Canyon Creek 1-5 MP 95.4, Umpqua Basin

This proposed activity includes placing of 28 cubic meters of 1000 class rip rap to construct two rock weirs at the culvert outlet. Plastic baffles will be installed inside the culvert. Wing walls will be constructed.

Canyon Creek 1-5 MP 95.9, Umpqua Basin

This proposed activity includes placing 35 cubic meters of 1000 class rip rap construct two rock weirs at the culvert outlet and placing 20 large boulders at the culvert inlet.

Canyon Creek 1-5 MP 96.27, Umpqua Basin

This proposed activity includes anchoring latticework of angle iron by bolting to the floor of the arch culvert

Thief Creek 1-5 MP 96.3, Umpqua Basin

This proposed activity includes placing 10 cubic meters of 1000 class rip rap construct two rock weirs at the culvert outlet.

Buck Creek 1-5 MP 162.37, Umpqua Basin

This proposed activity includes installing concrete and plastic baffles inside the culvert. A concrete apron will be laid at the outlet.

Buck Creek 1-5 MP 162.4, Umpqua Basin

This activity includes placing 27 cubic meters of 1000 class rip rap to construct three rock weirs at the culvert outlet. Concrete and plastic baffles will be installed inside the culvert. A concrete apron will be laid at the outlet.

III. Biological Information and Critical Habitat

The listing status, biolog.ical information, and critical habitat elements or potential critical habitat for the indicated species are described in Table 1.

Species (Biological References)	Listing Status Reference	Critical Habitat Reference
Umpqua River cutthroat trout (Johnson et. al. 1994)	The Umpqua River cutthroat trout ESU was listed as endangered under ESA by the NMFS (August 9, 1996, 61 FR 41514)	Umpqua River cutthroat trout critical habitat has been designated (January 9, 1998 63 FR 1388) incorporatingf all waterways below long-standing, natural impassable barriers. This is current freshwaterand estuarine range of the listed species

Table 1.
References to Federal Register Notices containing additional information concerning listing status, biological information, and critical habitat designations for listed and proposed species considered in this biological opinion.

IV. Evaluating Proposed Actions

The standards for determining jeopardy are set forth in Section 7(a)(2) of the ESA cis defined by 50 CFR Part 402 (the consultation regulations). Attachment I describes how NMFS applies the ESA jeopardy standards to consultations on Federal actions. This application involves defining the biological requirements of the listed species; evaluating the relevance of the environmental baseline to the species' current status; determining the effects of the proposed or continuing action on listed species; determining whether the species can be expected to survive with an adequate potential for recovery under the effects of the proposed or continuing action, the environmental baseline and any cumulative effects, and considering measures for survival and recovery specific to other life stages; determining whether the action will appreciably diminish the value of critical habitat, if designated, for both the survival and recovery of the species; and identifying reasonable and prudent alternatives to a proposed or continuing action that is likely to jeopardize the continued existence of the listed species.

A. Biological Requirements

For this consultation, NMFS finds that the biological requirements of the listed and proposed ESU's are best expressed in terms of environmental factors that define properly functioning freshwater aquatic habitat necessary for survival and recovery of the ESU's. Individual environmental factors include water quality , habitat access, physical habitat elements, and

channel condition. Properly functioning watersheds, where all of the individual factors operate together to provide healthy aquatic ecosystems, are also necessary for the survival and recovery of the listed and proposed ESU's (as referenced in Table 1).

B. Environmental Baseline

The current range-wide.status of the identified ESU's under the environmental baseline is described in Table 1. The identified actions will occur throughout some of the Umpqua River cutthroat trout range. The defined action areas for each proposed action is the area that is directly and indirectly affected. The direct affects occur at the project site and may extend upstream or downstream based on the potential for affecting fish passage, hydraulics, sediment and other pollutant discharge, and the extent of riparian habitat modifications. Indirect affects may occur throughout the watershed where actions described in this opinion lead to additional activities or affect ecological functions contributing to stream degradation. As such, the action area for the proposed activities include the immediate watershed containing the project and those areas upstream and downstream that may reasonably be affected, temporarily or in the long term. For the purposes of this opinion, the action area is defined by the watershed area commonly referred to as the 5th field HUC (Hydrologic Unit Code, a numeric hierarchical classification of water drainage basins developed by the US Geological Survey).

Woodward Creek is in the Middle Cow Creek watershed. The land use is predominantly forestry, with agriculture and urban uses along 1-5 and Cow Creek. Land ownership is mostly private. Anadromous salmonids migrate, spawn and rear within the watershed (ODFW 1996) and within designated essential salmonid habitat (DSL 1996). Water quality standards for temperature are not being met in potions of this watershed (DEQ 1996, 1998). Sedimentation and habitat complexity including off channel habitat remain (as reference4 in Table 1,). Habitat access is impaired (ODFW 1997b). Potential restoration of properly functioning stream conditions within the watershed would include minimizing disturbances to riparian, off -channel and in-channel habitat and restoring or enhancing these habitat elements.

Canyon Creek is in the South Umpqua watershed. This watershed includes portions of the South Umpqua River and various tributaries. The land use is predominantly forestry, yet includes agriculture and urban. Land ownership is mostly private. Anadromous salmonids migrate, spawn and rear within the watershed (ODFW 1996) and within designated essential salmonid habitat (DSL 1996). Water quality standards for temperature, dissolved oxygen, sedimentation and habitat complexity including off channel habitat are not being met in potions of this watershed DEQ 1996, 1998). Sedimentation and habitat complexity including off channel habitat remain (as referenced in Table 1,). Habitat access is impaired (ODFW 1997b). Potential restoration of properly functioning stream conditions within the watershed would include minimizing disturbances to riparian, off-channel and in-channel habitat and restoring or enhancing these habitat elements.

Buck Creek and Theft (Thief) Creek are in the Elk Creek watershed. This watershed includes Elk Creek and various tributaries. The land use is predominantly forestry, yet includes agriculture and urban. Land ownership is mostly private. Anadromous salmonids migrate, spawn and rear within the watershed (ODFW 1996) and within designated essential salmonid habitat

(DSL 1996). Water quality standards for temperature, dissolved oxygen, sedimentation and habitat complexity including off channel habitat are not being met in potions of this watershed (DEQ 1996, 1998). Sedimentation and habitat complexity including off channel habitat remain (as referenced in Table 1,). Habitat access is impaired (ODFW 1997b). Potential restoration of properly functioning stream conditions within the watershed would include minimizing disturbances to riparian, off-channel and in-channel habitat and restoring or enhancing these habitat .elements.

Based on the best available information on the current status of these ESU's range wide (as referenced in Table 1); the population status, trends, and genetics (Attachment 1); and the poor environmental baseline conditions within the action area, NMFS concludes that the biological requirements of the identified ESU's within the action area are not currently being met. Improvement in habitat conditions is needed to meet the biological requirements for survival and recovery of these species. Actions that do not maintain or restore properly functioning aquatic habitat conditions would be likely to jeopardize the continued existence of anadromous salmonids.

V. Analysis of Effects

A. Effects of Proposed Actions

The effects determination in this opinion was made using a method for evaluating current aquatic conditions, the environmental baseline, and predicting effects of actions on them. This process is described in the document "Making ESA Determinations of Effect for Individual or Grouped Actions at the Watershed Scale" (NMFS 1996). This assessment method was designed for the purpose of providing adequate information for NMFS to determine the effects of actions subject to consultation. The effects of actions are expressed in terms of the expected affect -restore, maintain, or degrade -on aquatic habitat factors in the project area. For the actions considered in this BO habitat access and pools are most would be affected in the long term.

The effects on aquatic habitat factors and to species from actions considered in this opinion can be limited by utilizing construction methods and approaches that are intended to minimize impacts. The effects of the proposed project have been evaluated based on the application of the General Minimization and Avoidance Measures as presented in attachment 2 with particular attention to timing of actions to the preferred in-water work period (established by Oregon Department of Fish and Wildlife) and erosion control.

For each of the project actions described below, the NMFS expect that the effects of the project actions will tend to maintain or restore each of the habitat elements over the long-term, greater than one year. In the short term turbidity will increase, riparian habitat will be disturbed and flows within culvert will be diverted. In the long term hydraulic conditions for fish passage will be improved, riparian habitat will be restored, and in-stream pools and accumulation of gravel will occur. The potential effects from the sum total of proposed actions are expected to restore properly functioning stream conditions on site and restore properly functioning conditions or not further degrade the environmental baseline within the watershed.

Specific Affects for each Action:

Woodford Creek 1-5 MP 83.09, Umpqua Basin

This site can be characterized by low to moderate gradient meandering stream with riparian habitat consisting of grass and shrub. This actions will provide improved access to approximately two miles of fair upstream habitat.

Canyon Creek 1-5 MP 94.2, Umpqua Basin

This site can be characterized as a steep gradient stream reach contained within a concrete channel and high velocity stream flows. This actions will provide improved access to approximately two miles of fair upstream habitat.

Canyon Creek, 1-5 MP 95.4 --Umpqua Basin

This site can be characterized by low to moderate gradient meandering stream with riparian habitat consisting of deciduous trees. This actions will provide improved access to two miles of fair upstream habitat (ODFW 1997b}.

Canyon Creek, 1-5 MP 95.9 --Umpqua Basin

This site can be characterized by low to moderate gradient meandering stream with riparian habitat consisting of deciduous trees. This actions will provide improved access to 18 miles of fair upstream habitat (ODFW 1997}.

Canyon Creek 1-5 MP 96.27, Umpqua Basin

This site can be characterized by low to moderate gradient meandering stream moderately constrained by steep side slopes. This action will provide improved access to eight miles of fair upstream habitat (ODFW 1997b}.

Thief (Theft} Creek 1-5 MP 96.3-- Umpqua Basin

This site can be characterized by moderately sloped and constrained stream within moderately steep side slopes vegetated with deciduous trees. This action will provide improved access to three miles of fair upstream habitat (ODFW 1997b }.

Buck Creek 1-5 MP 162.4-- Umpqua Basin

This site can be characterized by broad flood plain and low gradient stream with minimal riparian vegetation of grasses and shrubs. This action will provide improved access to 8.5 miles of fair upstream habitat (ODFW 1997b}.

Buck Creek 1-5 MP 162.3 7, Umpqua Basin

This site can be characterized by broad flood plain and low gradient stream with minimal riparian vegetation of grasses ~d shrubs. This actions is adjacent to and complements the other culvert action on Buck Creek 1-5 MP 162.4 to improve access to 8.5 miles habitat.

B. Effects on Critical Habitat

NMFS designates critical habitat based on physical and biological features that are essential to 6 the listed species. Essential features for designated critical habitat include substrate, water quality, water quantity, water temperature, food, riparian vegetation, access, water velocity, space and safe passage. Critical habitat for the Umpqua River cutthroat trout includes the stream, bottom and water, and adjacent riparian zone within 300 ft of ordinary high water within the defined geographic extent (as referenced Table 1.). For each of the proposed actions, NMFS expects that the effects of these actions will tend to maintain or restore properly functioning conditions in the watershed under current baseline conditions. In the short term the proposed actions will effect critical habitat, temporarily increasing fine sediment and disturbing riparian vegetation. In the long term the proposed actions will improve access, increase refuge sites, and provide improved passage. NMFS does not expect that these actions will diminish the value of the habitat for survival of the indicated species.

C. Cumulative Effects

Cumulative effects are defined in 50 CFR 402.02 as "those effects of future State or private activities, not involving Federal activities, that are reasonably certain to occur within the action area of the Federal action subject to consultation." For the purposes of this analysis, the general action areas are the watersheds containing the project. Future Federal actions, including the ongoing operation of hydropower systems, hatcheries, fisheries, and land management activities are being (or have been) reviewed through separate section 7 consultation processes. In addition, non-Federal actions that require authorization under section 10 of the ESA will be evaluated in section 7 consultations. Therefore, these actions are not considered cumulative to the proposed action.

A wide variety of actions occur within the watersheds defined within this HO. NMFS is not aware of any significant change in such non-Federal activities that are reasonably certain to ccur. NMFS assumes that future private and state actions will continue at similar intensities as in recent year.

VI. Conclusion

NMFS has determined that, based on the available information, that the proposed actions covered in this opinion are not likely to jeopardize the continued existence Umpqua River cutthroat trout. NMFS used the best available scientific and commercial data to apply its jeopardy analysis (described in Attachment 1), when analyzing the effects of the proposed action on the biological requirements of the species relative to the environmental baseline (described in Attachment 1), together with cumulative effects. NMFS applied its evaluation methodology (NMFS 1996) to the proposed action and found that it would cause minor, short-term adverse degradation of anadromous salmonid habitat due to sediment impacts, in-water construction noise and habitat displacement. These effects will be balanced in the long-term through the proposed mitigation. Direct mortality from this project in not expected to occur.

IX. Reinitiation of Consultation

Consultation must be reinitiated if: the amount or extent of taking specified in the Incidental Take Statement is exceeded, or is expected to be exceeded; new information reveals effects of the action may affect listed species in a way not previously considered; the action is modified in away that causes an effect on listed species that was not previously considered; or, a new species is listed or critical habitat is designated that may be affected by the action (50 CFR 402.16).

X. References

Section 7(a)(2) of the E-SA requires biological opinions to be based on "the best scientific and commercial data available." This section identifies the data used in developing this opinion.

DEQ 1996. 303d List of Water Quality Limited Streams, as Required Under the Clean Water Act. Oregon Department of Environmental Quality (DEQ), Portland, OR. 1996. (www .deq.state.or .us/wq/303dlistl303dpage.htm).

DEQ 1998. Draft 303d List of Water Quality Limited Streams, as Required Under the Clean Water Act. Oregon Department of Environmental Quality (DEQ), Portland, OR. 1998. (www .deq.state. or .us/wq/303dlistl303dpage.htm).

DSL 1996. Essential Indigenous Salmonid Habitat, Designated Areas, (OAR 141-102-030). Oregon Division of State Lands. Portland, OR. 1996.

Johnson, O.W., R.S. Waples, T.C. Wainwright, K.G. Neely, F.W. Waknitz, and L.T. Parker. 1994. Status Review for Oregon's Umpqua River Sea-Run Cutthroat Trout. U.S. Department of Commerce, NOAA Tech Memo. NMFS-NWFSC-15, Northwest Fisheries Science Center, Seattle, Washington.

NMFS (National Marine Fisheries Service) 1996. Making Endangered Species Act determinations of effect for individual and grouped actions at the watershed scale. Habitat Conservation Program, Portland, Oregon.

ODFW 1996. Database --Salmonid Distribution and Habitat Utilization, Arc/Info GIS coverages. Portland, Or. 1996. (rainbow.dfw.state.or.us/ftp/).

ODFW 1997a. Oregon Department ofFish and Wildlife Guidelines and Criteria for Stream-Road Crossings. ODFW, Portland, OR, October 1997.

ODFW 1997b. Road Culvert Inventory and Assessment for State and County Owned Roads: Five Oregon Coastal Basins. Prepared for Oregon Department of Transportation (#15433). Mary E. Holbert, Tom J. Mcdermott, Albert H. Mirati, Jr. Oregon Department of Fish and Wildlife, Portland, OR, September, 1997.

XI. Incidental Take Statement

Sections 4 (d) and 9 of the ESA prohibit any taking (harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, collect, or attempt to engage in any such conduct) of listed species without a specific permit or exemption. Harm is further defined to include significant habitat modification or degradation that results in death or injury to listed species by significantly impairing behavioral patters such as breeding, feeding and sheltering. Harass is defined as actions that create the likelihood of injuring listed species to such an extent as to significantly alter normal behavior patterns which include, but are not limited to, breeding, feeding and sheltering. Incidental take is take of listed animal species that results from, but is not the purpose of, the Federal agency or the applicant carrying out an otherwise lawful activity. Under the terms of section 7(b)(4) and sect.ion 7(o)(2), taking that is incidental to, and not intended as part of, the agency action is not considered prohibited taking provided that such taking is in compliance with the terms and conditions of this incidental take statement.

An incidental take statement specifies the impact of any incidental taking of endangered or threatened species. It also provides reasonable and prudent measures that are necessary to minimize impacts and sets forth terms and conditions with which the action agency must comply in order to implement the reasonable and prudent measures.

A. Amount or Extent of the Take

The NMFS anticipates that the action covered by this Biological Opinion has more than a inegligible likelihood of resulting in incidental take of Umpqua River cutthroat trout because of detrimental effects from increased sediment levels and the potential for direct incidental take during in-water work. Effects of actions such as these are largely unquantifiable in the short term, and are not expected to be measurable as long-term effects on the species' habitat or population levels. Therefore, even though NMFS expects some low level incidental take to occur due to the actions covered by this Biological Opinion, the best scientific and commercial data available are not sufficient to enable NMFS to estimate a specific amount of incidental take to the species itself. In instances such as these, the NMFS designates the expected level of take as "unquantifiable." Based on the information in the BA, NMFS anticipates that an unquantifiable amount of incidental take could occur as a result of the actions covered by this Biological Opinion.

B. Reasonable and Prudent Measures

The NMFS believes that the following reasonable and prudent measure(s) are necessary and appropriate to minimizing take of the above species.

I. Upon completion of the action, fish passage potential is demonstrated.
2. Stream habitat in vicinity of culvert is restored to proper function in the long term.
3. Each activity be maintained, monitored, and as necessary modified to maintain long term fish passage and habitat access.
4. At locations where fish of concern may be present year round, all efforts should be made to minimize the extent and duration of activity within the waterway.

C. Terms and Conditions

In order to be exempt from the prohibitions of section 9 of the ESA, QDOT must comply with the following terms and conditions, which implement the reasonable and prudent measures described above. These terms and conditions are non-discretionary.

la. Within the first year after completion of culvert modification, the culvert modification is inspected once during low water and once during high water and evaluated against objectives for fish passage relative ODFW fish passage standards (ODFW 1997).

2a. All disturbed areas and not properly functioning riparian habitat within the immediate vicinity of the culvert and within the ODOT right of way be planted with native riparian vegetatation.

3a. For three years following the completion of the culvert modification, the culvert is monitored and periodically inspected for proper fish passage conditions.

3b. For three years following the completion of the culvert modification, periodic observations or indications of actual fish movement past and upstream of culvert are to be recorded.

3c. An annual report presenting the results of the monitoring and inspections at the modified culvert shall be submitted to the NMFS at the end of the calendar year for three years following the completion of the culvert modification. These reports shall include " sufficient detail to demonstrate consistency with ODFW fish passage standards (ODFW " 1997), provide assessment of fish access and utilization of upstream habitat, and indicate any maintenance actions that were taken that were necessary to maintain fish passage.

4a. Site specific conditions and available information concerning the actual presence of listed fish shall be consider when defining the actual in-water work period.